[INCH-POUND]
A-A-59212
May 18, 1998
SUPERSEDING
MIL-W-29158B(YD)
11 July 1989

COMMERCIAL ITEM DESCRIPTION

WINCHES, DRUMS, POWER-OPERATED, DIESEL-ENGINE-DRIVEN

The General Services Administration has authorized the use of this commercial item description, for all federal agencies.

1. SCOPE. This commercial item description covers integrally constructed diesel-engine-driven winches with pneumatic controls for general marine and shoreline service.

2. CLASSIFICATION. The winches covered by this commercial item description are of the following type as specified (see 7.2):

Type I - Two drums.
Type II - Three drums.

3. SALIENT CHARACTERISTICS.

3.1 Description. The winch shall be complete with built on control station, air-powered controls for brakes, clutches, diesel engine and controls, drum rotation power train with reversing manual transmission, engine powered air compressor, and air-power control system. When specified (see 7.2), the winches shall be mounted on a skid base. When specified (see 7.2), the winches shall be mounted on a support frame.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 15E2), Naval Construction Battalion Center, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3.1.1 Type I. Type I winch shall have two drums arranged in stepped (waterfall) formation. The control station shall face the winch while providing a clear view of cable operations for both the upper and lower drum rotation and of the extended cable operations. The right hand drum shall have overwind wire rope payout. The left hand drum shall have underwind wire rope payout. A capstan drive shall be provided on the end of the right hand drum shaft on the opposite side of the winch from the control station. Unless otherwise specified (see 7.2), type I winch shall be furnished with not less than 1,000 feet (305 metre (m)) of 0.875-inch (22.23 millimetre (mm)) nominal diameter wire rope on each drum.

3.1.2 Type II. Type II winch shall have three drums in stepped formation. The control station shall be mounted with the drums to the left of the operator, and shall face in the direction of the low drum. The upper and intermediate winch drums shall have overwind wire rope payout. The lower winch drum shall have underwind wire rope payout. One capstan drive shall be provided on each of the lower intermediate drum shaft ends on the opposite side of the winch from the control station. Unless otherwise specified (see 7.2), type II winch shall be furnished with not less than 2,000 feet (610 m) of wire rope on each drum, with 1.125-inch (28.58 mm) diameter on the lower and intermediate drum and 0.875-inch (22.23 mm) diameter on the upper drum.

3.2 Standard commercial product. The winch shall, as a minimum, be in accordance with the requirements of this commercial item description and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this commercial item description but which are a part of the manufacturer's standard commercial product, shall be included in the winch being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3 Performance. Operation of air controls shall have a smooth positive response, and shall give a feel of precise control to the operator when braking and clutching. The drum locking ratchet or dog controls shall seat firmly, in the released and in the set positions, and shall not be subject to accidental disengagement. The engine shall run steadily at any throttle control setting, and speed change shall be easily coordinated when clutching against load, and during dynamic load lowering operations. Failure of air supply shall not result in accidental dropping of the load. Each drum for type I winch shall be capable of maintaining a single drum line pull of not less than 30,000 pounds (lb) (13 607.77 kilogram (kg)), at a line speed of not less than 35 feet per minute (ft/min) (0.18 metre per second (m/s)). Type II winch shall be capable of maintaining a single drum line pull on either drum of not less than 33,000 lb (14 968.55 kg), at a line speed not less than 150 ft/min (0.76 m/s). Transfer of load between the drums, with momentary load on all drums, shall be performed smoothly without noticeable reactionary shock, by use of clutch, brake, and drum holding ratchet and pawl, or drum holding dog action. With not less than 2,000 feet (610 m) of wire rope on the high drum, the type II winch shall be capable of maintaining a single drum line pull of not less than 15,000 lb (6 803.89 kg), at a line speed not less than 300 ft/min (1.52 m/s).

3.4 Design and construction. The winch and all accessories shall be integrally assembled for maximum compactness and minimum weight. The design and construction of the winch shall be in accordance with the best engineering practice. The equipment design and accessory installations shall provide accessibility for maintenance and service in the field. The design shall be such as to prevent conditions which may be hazardous to personnel or deleterious to equipment. Maximum use of antifriction roller and ball bearings shall be made. The winches shall be designed for continuous all weather use, and shall not be damaged by occasional salt water splash.

3.4.1 Control station. A control station with banked lever air-powered controls shall be provided. Hand-operated levers shall be provided to control engine speed, clutches, and drum brakes. The hand-operated throttle control shall remain in the position set until readjusted. Clutch controls shall be provided with detents in the fully released and fully set positions. The control station shall be so situated that the operator shall have an unobstructed view of both drums and cable operation.

3.4.2 Drums and capstan drives. Drums and capstan drives shall be of cast semi-steel, cast steel, or alloy steel construction. Drums shall have heavily reinforced barrels and flanges, heat treated and machined, for balance and even spooling. Drum flanges shall incorporate finished brake and clutch friction surfaces. Cooling fins for maintaining balanced operating temperature shall be incorporated. The drum flange diameter and contour shall be adequate to provide operation clearance and storage capacity for not less than the specified nominal diameter and length of wire rope, or of the manufacturer's standard length, whichever is longer.

3.4.3 Winch drum clutches. Winch drum clutches shall be of the double-faced friction band, diaphragm actuated multiple disk type, cone type, internally expanding, or of the single or external contracting type with two bands for balanced forces and short wrap to minimize self-energization. Composition friction block wearing surfaces and simple means for adjustment shall be provided. The clutches shall have air-powered engagement, and spring release. Operation under maximum loading conditions for a continuous period of not less than 30 minutes shall not cause burning, nor damage to the lining when operated in accordance with the manufacturer's standard procedure.

3.4.4 Winch drum brakes. Winch drum brakes shall be either the cone or the flat band type, and shall operate against a steel or cast iron finished brake ring fitted to the drum flange. Brakes shall be spring set with air powered release, except that when an automatic safety brake provision is incorporated to prevent backward drum rotation on air supply failure. At the manufacturer's option, the brakes may be air power set and spring released. Brakes shall not slip when required single drum line pull is applied tangent to the pitch circle of the first layer of wire rope on the drum. There shall be no sign of eccentricity, nor change in clearance between brake band and brake ring when the drum is rotated freely, after 30 minutes of operation of the winch under full load conditions.

3.4.5 Drum holding ratchets and pawls or dogs. Ratchets or dog engaging wheels shall be integral with the drum, and shall have teeth or sockets of uniform contour, to provide maximum surface contact with the pawl or dog for the transference of shock loading with a minimum of

strain. The pawls or dogs shall be spring released with air powered engagement or air released with spring engagement. Control shall provide for full engagement or full release, and shall have a snap action to prevent tooth skipping and accidental corner snagging. Pawls shall show no signs of distortion or breakage when locked in position, and loaded by the application of a line pull of not less than 30,000 lb (13 607.77 kg), with a rope lead tangent to the bare drum wrap level.

3.4.6 Gears, pinions, sprockets, and shafts. Gears, pinions, and sprockets, shall be of forged or heat treated steel, or cast alloy steel, of a structurally adequate alloy suitable for waterfront use. Rotating shafts shall be machined from alloy steel. All steel shall be suitable for seaside application.

3.4.7 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, accessories, and spare parts.

3.5 Diesel engine. The diesel engine shall have horsepower, torque, and speed characteristics to meet satisfactorily all performance requirements specified herein. The engine shall start within 5 minutes and be ready for full load operation within 15 minutes in ambient temperature from + 125 degrees Fahrenheit (°F) (+ 52 degrees Celsius (°C)) to - 20 °F (- 29 °C). Engine shall be furnished complete with the following:

a. A 12-volt electrical cranking system. Battery shall be 12-volt potential, negative ground. The voltage and ampere-hour rating of the batteries shall be sufficient to provide not less than 5 minutes of total intermittent engine cranking time while retaining a battery voltage of not less than 1.0 volts per cell. Battery shall be shipped charged and dry.
b. A battery charging alternator, with a rating of not less than 35 amperes.
c. An intake air cleaner.
d. Hour meter.
e. Lubricating oil pressure indicator.
f. Cooling media temperature indicator.
g. Start-stop control.
h. Battery-alternator indicator.
i. Muffler.
j. Fuel tank level indicator.
k. Fuel tank with sufficient capacity for not less than 8 hours of normal operation.
l. Engine housing of weather-resistant heavy-gauge sheet steel. The housing shall be removable or otherwise designed to permit engine removal and replacement.

3.6 Power transmission. The transmission shall be manual type with not less than 3 speeds forward, 1 speed reverse, and a neutral position for free payout of line.

3.7 Air compressor. Air compressor shall be the type with sufficient capacity to operate the winch air-power control system. Air compressor shall include a receiver, controls, and gages.

3.8 Base, skid-type. The winch shall be mounted on the manufacturer's designed skid base consisting of not less than two full length steel channels.

3.9 Lifting and tiedown attachments. When specified (see 7.2), the winches shall be equipped with lifting and tiedown attachments. A nonferrous transportation plate shall be provided and mechanically attached to the winches. Transportation plates shall be inscribed with the diagram showing the lifting attachments and lifting slings, the capacity of each attachment, and the required length and size of each sling cable. A silhouette of the item furnished showing the center of gravity shall be provided on the transportation plate. Tiedown attachments may be identified by stenciling or other suitable marking. Tiedown marking shall clearly indicate that the attachments are intended for the tiedown of the winches on the carrier when shipped.

3.10 Toolbox. When specified (see 7.2), a toolbox shall be provided. The toolbox shall be large enough to store all tools required for field service or maintenance. The toolbox shall not have external closed dimensions less than 14 inches (356 mm) in length, 6 inches (152 mm) in width, and a 6 inches (152 mm) in height. The toolbox shall have a hinged lid and a trunk drawbolt to keep the lid secure when vibrated. The toolbox shall be mounted in a protected, accessible location.

3.11 Treatment, and painting. Unless otherwise specified (see 7.2), the winches shall be treated and painted in accordance with the manufacturer's standard practice. All surfaces of the winches other than corrosion-resisting steel shall be protected against corrosion and present a neat appearance.

3.12 Instruction plates. The equipment shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be securely affixed to the equipment with nonferrous screws or bolts.

3.13 Identification plate. An identification plate will be furnished by the contracting officer for each winch. The contractor shall stamp all necessary data in the blank spaces of the plate provided for that purpose, and securely affix it to each unit in a conspicuous place with non-ferrous screws, rivets, or bolts. The applicable nomenclature contained in the contract item description shall be placed in the top blank.

4. REGULATORY REQUIREMENTS.

4.1 Materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this commercial item description are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to

virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this commercial item description.

4.2 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest version of ASTM SI-10 (IEEE/ASTM SI-10), and all other requirements of this commercial item description including form, fit and function are met. If a product is manufactured to metric dimensions and these dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

5. QUALITY ASSURANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

6. PACKAGING. The preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 Source of documents.

7.1.1 The Federal Acquisition Regulation (FAR) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.2 ASTM Standard is available from the Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.1.3 IEEE Standard is available from the Institute of Electrical and Electronics Engineers (IEEE), IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

7.2 Ordering data. Acquisition documents should specify the following:

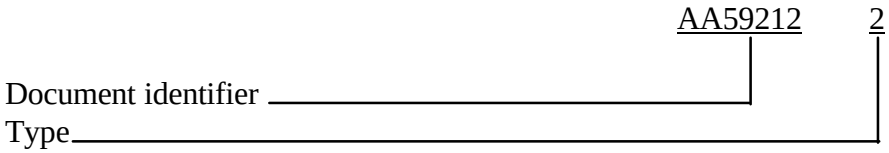
a. Title, number, and date of this CID.
b. Type of winch required (see 2).
c. When skid base is required (see 3.1).
d. When support frame is required (see 3.1).
e. When size and minimum length of wire rope is other than specified (see 3.1.1 and 3.1.2).
f. When lifting and tiedown attachments are required (see 3.9).
g. When toolbox is required (see 3.10).
h. When treatment and painting is other than specified (see 3.11).

7.3 Supersession data. This CID replaces Military Specification MIL-W-29158B(YD), dated 11 July 1989.

7.4 Cross-reference of terminology. The terminology used in this document differs from the previous issue in the following respect:

MIL-W-29158B(YD)	A-A-59212
Gypsy head	Capstan drive

7.5 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PINs to be used for items acquired to this description are created as follows:



The above PIN is for Type II winch with three drums.

7.6 Metric units. The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system should be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

7.7 Subject term (key word) listing.

Compressor, air
Diesel engine
Marine service
Skid base
Three drums
Two drums
Wire rope

7.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to previous issue due to the extensiveness of the changes.

MILITARY INTERESTS:

Custodians:
Army - AV
Navy - YD1
Air Force - 99

Review Activities:
Army - SM
Navy - SA, SH
Air Force - 84

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:
Navy - YD1

(Project 3950-0319)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER** A-A-59212	**2. DOCUMENT DATE (YYMMDD)** 980518

3. DOCUMENT TITLE

WINCHES, DRUMS, POWER-OPERATED, DIESEL-ENGINE-DRIVEN

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON *(if applicable)*	**7.DATE SUBMITTED** (YYMMDD)

8. PREPARING ACTIVITY

a. NAME ROBERT J. BRICKEY	b. TELEPHONE *Include Area Code)* (1) Commercial 805-982-5593 (2) AUTOVON 551-5593
c. ADDRESS *(Include Zip Code)* COMMANDING OFFICER, NCBC CODE 15E2B 1000 23RD AVENUE PORT HUENEME, CA 93043-4301	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** DEFENSE QUALITY AND STANDARDIZATION OFFICE 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466 Telephone (703) 756-2340 AUTOVON 289-2340